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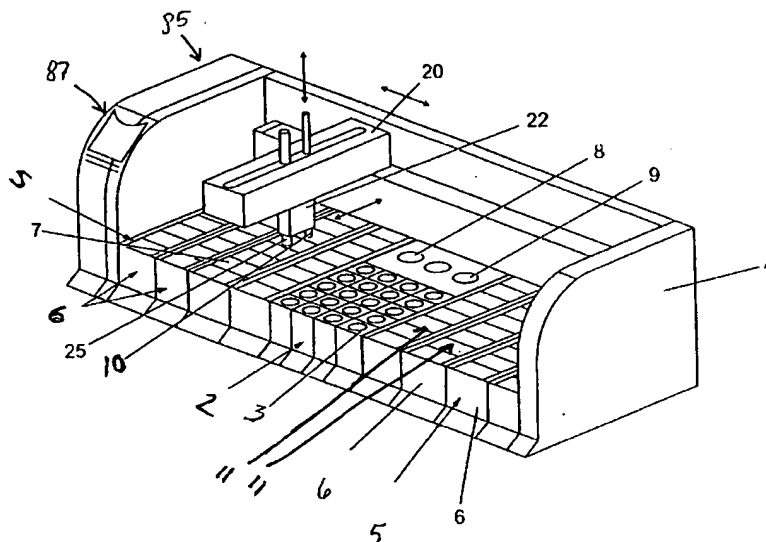
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[Continued on next page]

(54) Title: APPARATUS FOR AUTOMATED PROCESSING BIOLOGICAL SAMPLES



(57) Abstract: The present invention concerns an apparatus (1) for automatic processing at least one biological sample accommodated on a carrier member, such as a slide by (7) applying a predetermined amount of reagents in a predetermined sequence according to a processing protocol, said apparatus (1) comprising; a housing frame (4); at least one processing section for accommodating at least one slide (7), wherein the at least one processing section is provided within the housing (4); a hood cover protecting the at least one processing section in said housing (4); wherein the hood cover (40) completely encloses the processing section defining an interior space (120); and wherein the apparatus (1) further comprises climate control device (121) provided to control the environment within the interior space (120).

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SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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A. CLASSIFICATION OF SUBJECT MATTER

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US CL : 702/22

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 702/22, 19-32, 130, 132-136, 138, 140; 700/266, 276-278; 236/91A, 91C, 92R; 62/121,171,304; 435/46, 49, 50

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P — Y, P	US 2003/0124729 A1 (Christensen et al) 3 July 2003 (03.07.2003), paragraphs 33-36, Figure 2.	1, 2, 5-11, 20, 25, 33 ----- 3, 4, 12-19, 21, 27, 28, 30-32, 35, 36, , 38, 39
Y	US 4,115,861 A (Allington) 19 September 1978 (19.09.1978), column 2, lines 11-24; column, 7, lines 48-59.	1, 2, 4, 33
Y	US 4,510,609 A (Linner) 9 April 1985 (09.04.1985), column 7, lines 10-31.	12
Y	US 4,695,430 A (Coville et al) 22 September 1987 (22.09.1987), column 3, line 27 - column 5, line 25.	1, 14, 33
Y	US 5,382,511 A (Stapleton) 17 January 1995 (17.01.1995), Abstract, column 7, line 52 - column 3, line 5.	16-18
Y	US 6,335,208 B1 (Lowry) 1 January 2002 (01.01.2002), column 2, lines 31-43.	19
Y	US 2001/0006417 A1 (Modlin et al) 5 July 2001 (05.07.2001), paragraph 10.	1, 14, 15, 18, 33



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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2001/0037072 A1 (Virtanen) 1 November 2001 (01.11.2001), paragraph 34.	30, 38
Y	US 2001/0055799 A1 (Baunoch et al) 27 December 2001 (27.12.2001), paragraph 28.	16, 17, 19, 28, 36
Y	US 2002/0009391 A1 (Marquiss et al) 24 January 2002 (24.01.2002), paragraphs 261, 262.	1, 14, 15, 18, 31, 33, 39
Y	US 2002/0176801 A1 (Giebeler et al) 28 November 2002 (28.11.2002), paragraphs 39, 40.	1, 14, 20, 33
Y	US 2002/0178547 A1 (Shofner et al) 5 December 2002 (05.12.2002), paragraph 28.	27, 35
Y, P	US 2003/0043963 A1 (Yamagami et al) 6 March 2003 (06.03.2003), paragraphs 40-52.	21
Y	GB 2218514 A (General Motors Corporation) 15 November 1989 (15.11.1989), Abstract.	12
Y	ES 2160486 A1 (Consejo Superior Investigaciones Cientif) 1 November 2001 (01.11.2001), Abstract.	13

INTERNATIONAL SEARCH REPORT

PCT/US03/40520

Continuation of B. FIELDS SEARCHED Item 3:

USPAT, DERWENT, JPO, EPO, IBM_TDB

search terms: (process processing) biological sample, climate control, environmental control, air condition, sensor inlet outlet valve, hood, cover, high humidity, low humidity, prevent drying, microbial, discoloring, reagent, nuetural gas, oxygen, carbon dioxide, nitrogen, formamide